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10/074,258	02/14/2002	Kazuhiko Nagano	Q67115	5060

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SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER	
KOSOWSKI, ALEXANDER J	
ART UNIT	PAPER NUMBER
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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/074,258	Applicant(s) NAGANO ET AL.
	Examiner Alexander J. Kosowski	Art Unit 2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 29 November 2006.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-34 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-34 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 11/9/06.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1) Claims 1-31 and new claims 32-34 are presented for examination in light of the amendment filed 11/29/06. This is a second non-final rejection.

Double Patenting

2) The double patenting rejection from the previous office action is withdrawn in light of the terminal disclaimer filed 9/29/06.

Claim Rejections - 35 USC § 102

3) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4) Claim 25 is rejected under 35 U.S.C. 102(e) as being unpatentable over Smith (U.S. Pat 6,500,378).

Referring to claim 25, Smith teaches an exposure unit for exposing a plurality of pixels (col. 6 lines 10-46), the unit comprising a light source (col. 6 lines 10-19), a condensing optical system for condensing a light beam emitted from the light source (col. 7 lines 1-3, whereby lenses are used to focus energy), and a deflecting element for modulating the light beam condensed by the condensing optical system for each pixel in accordance with image data (col. 6 lines 39-46, whereby each SLM comprises mirrors which modulate light based on discrete pixel information from CAD data).

Claim Rejections - 35 USC § 103

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6) Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Referring to claim 27, Smith teaches the above. However, Smith does not explicitly teach that the light source, the condensing optical system, and the deflecting element are enclosed in a package.

Examiner notes that it would have been obvious to one skilled in the art at the time the invention was made to enclose the light source, optical system, and deflecting element in a package since Smith teaches they are all in close proximity to each other (Smith, Figure 1), and since it is noted that any optical system is susceptible to dust and dirt affecting its operability and a package surrounding optical elements would keep the system running optimally and within specifications.

7) Claims 1-7, 12-14, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable by Smith (U.S. Pat 6,500,378) further in view of DeVoe et al (U.S. Pat 6,855,478).

Referring to claim 1, Smith teaches an optical modeling device in which a light beam is exposed onto a photo-curable resin to form a three-dimensional model (Abstract), the device comprising: an exposure portion for exposing a plurality of pixels within a predetermined region

of a surface of the photo-curable resin by using the light beam emitted from a light source and modulated for each pixel in accordance with image data (col. 6 lines 10-65, whereby a light source projects light to a spatial light modulator which projects the light onto a resin, and whereby the light is modulated based on discrete pixel information formed from a CAD file); and a moving portion connected to the exposure portion for moving the exposure portion relative to the surface of the photo-curable resin (col. 9 lines 50-61, whereby an overhead translation apparatus may be utilized which moves the exposure portion relative to the surface of the resin). However, Smith does not explicitly teach that the light source is pulse-driven in picosecond pulses.

DeVoe teaches fabrication of three dimensional objects utilizing photo-hardenable compositions (col. 4 lines 5-16), whereby a light source may produce pulses in the picosecond range and below (col. 6 lines 31-44).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a light source pulse-driven in picosecond pulses in the invention taught by Smith above since pulse durations can be adjusted fast or slow depending on desired curing results (DeVoe, col. 4 lines 23-28) and since pulsed lasers with fast oscillators are considered useful exposure systems (DeVoe, col. 5 lines 62-67).

Referring to claim 2, Smith teaches an optical modeling device in which a light beam is exposed onto a photo-curable resin to form a three-dimensional model (Abstract), the device comprising: an exposure portion for exposing a plurality of pixels within a predetermined region of a surface of the photo-curable resin by using the light beam emitted from a light source, modulated for each pixel in accordance with image data (col. 6 lines 10-65, whereby a light

source projects light to a spatial light modulator which projects the light onto a resin, and whereby the light is modulated based on discrete pixel information formed from a CAD file), and a moving portion connected to the exposure portion for moving the exposure portion relative to the surface of the photo-curable resin (col. 9 lines 50-61, whereby an overhead translation apparatus may be utilized which moves the exposure portion relative to the surface of the resin). In addition, Smith teaches that a high speed strobe may deliver energy in pulses to the resin (col. 10 lines 18-27). However, Smith does not explicitly teach that the light source is pulse-driven in picosecond pulses.

DeVoe teaches fabrication of three dimensional objects utilizing photo-hardenable compositions (col. 4 lines 5-16), whereby a light source may produce pulses in the picosecond range and below (col. 6 lines 31-44).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a light source pulse-driven in picosecond pulses in the invention taught by Smith above since pulse durations can be adjusted fast or slow depending on desired curing results (DeVoe, col. 4 lines 23-28) and since pulsed lasers with fast oscillators are considered useful exposure systems (DeVoe, col. 5 lines 62-67).

Referring to claim 3, Smith teaches that the exposure portion comprises the light source, and a spatial light modulator for modulating the light beam emitted from the light source for each pixel in accordance with the image data (col. 6 lines 10-46, whereby an SLM is utilized and adjusted for discrete pixel representations).

Referring to claim 4, Smith teaches that the spatial light modulator comprises a digital micromirror device (col. 9 lines 17-29, whereby a DMD is utilized).

Referring to claim 5, Smith teaches an optical modeling device in which a light beam is exposed onto a photo-curable resin to form a three-dimensional model (Abstract), the device comprising an exposure portion, which is capable of scanning, for exposing a plurality of pixels within a predetermined region of a surface of the photo-curable resin by using the light beam emitted from a light source and modulated for each pixel in accordance with image data (col. 6 lines 10-65 and col. 9 lines 50-61, whereby a light source projects light to a spatial light modulator which projects the light onto a resin, whereby the light is modulated based on discrete pixel information formed from a CAD file, and whereby the SLM scans by pivoting its mirrors as the exposure portion is translated over the resin); and a moving portion connected to the exposure portion for moving the exposure portion relative to the surface of the photo-curable resin (col. 9 lines 50-61, whereby an overhead translation apparatus may be utilized which moves the exposure portion relative to the surface of the resin). However, Smith does not explicitly teach that the light source is pulse-driven in picosecond pulses.

DeVoe teaches fabrication of three dimensional objects utilizing photo-hardenable compositions (col. 4 lines 5-16), whereby a light source may produce pulses in the picosecond range and below (col. 6 lines 31-44).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a light source pulse-driven in picosecond pulses in the invention taught by Smith above since pulse durations can be adjusted fast or slow depending on desired curing results (DeVoe, col. 4 lines 23-28) and since pulsed lasers with fast oscillators are considered useful exposure systems (DeVoe, col. 5 lines 62-67).

Referring to claim 6, Smith teaches that the exposure portion comprises the light source, and a spatial light modulator array in which spatial light modulators, for modulating the light beam emitted from the light source for each pixel in accordance with image data, are arranged in a first scanning direction (col. 6 lines 10-46 and col. 9 lines 42-60 and Figures 3 and 4, whereby an SLM is utilized and adjusted for discrete pixel representations and whereby multiple SLM's may be utilized and translated in a scanning direction).

Referring to claim 7, see rejection of claim 4 above.

Referring to claim 12, Smith teaches an optical modeling device in which a light beam is exposed onto a photo-curable resin to form a three-dimensional model (Abstract), the device comprising an exposure portion which includes a plurality of exposure units arranged in an array (col. 9 lines 41-49 and Figure 3, whereby multiple SLM's may be utilized), each exposure unit scanning and exposing a plurality of pixels within a predetermined region of a surface of the photo-curable resin by using a light beam emitted from a light source and modulated for each pixel in accordance with image data (col. 6 lines 10-65, whereby a light source projects light to a spatial light modulator which projects the light onto a resin, and whereby the light is modulated based on discrete pixel information formed from a CAD file). However, Smith does not explicitly teach that the light source is pulse-driven in picosecond pulses.

DeVoe teaches fabrication of three dimensional objects utilizing photo-hardenable compositions (col. 4 lines 5-16), whereby a light source may produce pulses in the picosecond range and below (col. 6 lines 31-44).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a light source pulse-driven in picosecond pulses in the invention taught by

Smith above since pulse durations can be adjusted fast or slow depending on desired curing results (DeVoe, col. 4 lines 23-28) and since pulsed lasers with fast oscillators are considered useful exposure systems (DeVoe, col. 5 lines 62-67).

Referring to claim 13, Smith teaches that each of the exposure units comprises the light source (col. 6 lines 9-19), a condensing optical system for condensing the light beam emitted from the light source (col. 7 lines 1-3, whereby lenses can be used to focus energy), and a deflecting element for modulating the light beam condensed by the condensing optical system for each pixel in accordance with image data (col. 6 lines 39-46, whereby each SLM comprises mirrors which modulate light based on discrete pixel information from CAD data).

Referring to claim 14, see rejection of claim 27 above.

Referring to claim 26, Smith teaches an exposure unit for exposing a plurality of pixels (col. 6 lines 10-46), the unit comprising a light source (col. 6 lines 10-19), a condensing optical system for condensing a light beam emitted from the light source (col. 7 lines 1-3, whereby lenses are used to focus energy), and a deflecting element for modulating the light beam condensed by the condensing optical system for each pixel in accordance with image data (col. 6 lines 39-46, whereby each SLM comprises mirrors which modulate light based on discrete pixel information from CAD data). However, Smith does not explicitly teach that the light source is pulse-driven in picosecond pulses.

DeVoe teaches fabrication of three dimensional objects utilizing photo-hardenable compositions (col. 4 lines 5-16), whereby a light source may produce pulses in the picosecond range and below (col. 6 lines 31-44).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a light source pulse-driven in picosecond pulses in the invention taught by Smith above since pulse durations can be adjusted fast or slow depending on desired curing results (DeVoe, col. 4 lines 23-28) and since pulsed lasers with fast oscillators are considered useful exposure systems (DeVoe, col. 5 lines 62-67).

8) Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of Partanen et al (U.S. Pat 6,001,297).

Referring to claim 10, Smith teaches a device comprising an exposure portion for exposing a plurality of pixels within a predetermined region of a surface of the photo-curable resin by using the light beam emitted from a light source and modulated for each pixel in accordance with image data (col. 6 lines 10-65, whereby a light source projects light to a spatial light modulator which projects the light onto a resin, and whereby the light is modulated based on discrete pixel information formed from a CAD file); and a moving portion connected to the exposure portion for moving the exposure portion relative to the surface of the photo-curable resin (col. 9 lines 50-61, whereby an overhead translation apparatus may be utilized which moves the exposure portion relative to the surface of the resin). However, Smith does not explicitly teach at least one other exposure portion so that there is a plurality of exposure portions and the exposure portions are each independently movable relative to the surface of the photo-curable resin.

Partanen teaches utilizing multiple independently adjustable and positionable exposure portions in an optical modeling device (col. 11 lines 46-64).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the limitations above in the invention taught by Smith since this would allow a pulse command to be correlated to all mirror rotations and allow beam scanning in perpendicular orientations (Partanen, col. 11 lines 46-53).

Referring to claim 11, Smith teaches a device comprising an exposure portion, which is capable of scanning, for exposing a plurality of pixels within a predetermined region of a surface of the photo-curable resin by using the light beam emitted from a light source and modulated for each pixel in accordance with image data (col. 6 lines 10-65 and col. 9 lines 50-61, whereby a light source projects light to a spatial light modulator which projects the light onto a resin, whereby the light is modulated based on discrete pixel information formed from a CAD file, and whereby the SLM scans by pivoting its mirrors as the exposure portion is translated over the resin); and a moving portion connected to the exposure portion for moving the exposure portion relative to the surface of the photo-curable resin (col. 9 lines 50-61, whereby an overhead translation apparatus may be utilized which moves the exposure portion relative to the surface of the resin). However, Smith does not explicitly teach at least one other exposure portion so that there is a plurality of exposure portions and the exposure portions are each independently movable relative to the surface of the photo-curable resin.

Partanen teaches utilizing multiple independently adjustable and positionable exposure portions in an optical modeling device (col. 11 lines 46-64).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the limitations above in the invention taught by Smith since this would allow

a pulse command to be correlated to all mirror rotations and allow beam scanning in perpendicular orientations (Partanen, col. 11 lines 46-53).

9) Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of DeVoe, further in view of Jain et al (U.S. Pat 6,312,134).

Referring to claim 22, Smith and DeVoe teach the above. However, they do not explicitly teach that the light source comprises a plurality of laser light sources, and a multiplexing optical system for multiplexing the laser beams emitted from the plurality of laser light sources.

Jain teaches a rapid prototyping system which utilizes SLM's and DMD's (Abstract), whereby multiple pulsed lasers may be utilized (col. 7 lines 46-54 and col. 8 lines 11-17) and whereby an optical system is utilized to steer the lasers (col. 8 lines 50-66).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize multiple laser light sources and a multiplexing optical system in the invention taught by Smith above since this would allow an increase in the repetition rate of illuminating radiation which would provide higher throughput (Jain, col. 8 lines 12-17).

Referring to claims 23, see rejection of claim 22 above.

10) Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of Jain.

Referring to claim 31, see rejection of claim 22 above.

11) Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of Partanen, further in view of Jain.

Referring to claim 24, see rejection of claim 22 above.

12) Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of DeVoe, further in view of Beers et al (U.S. Pat 6,132,667).

Referring to claim 15, Smith and DeVoe teach the above. However, they do not explicitly teach that the deflecting element comprises a two-dimensional microscanner.

Beers teaches a three dimensional model builder (Abstract) comprising a pulsed laser which utilizes 2D scanning mirrors (col. 11 lines 17-51).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a two-dimensional microscanner in the invention taught by Smith above since this would allow a beam path to be selectively directed to desired locations on to the surface of a building material (Beers, col. 11 lines 37-39) and since this would allow for maintaining substantially uniform exposure over the length of each vector while scanning as fast as possible (Beers, col. 2 lines 45-49).

13) Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of Beers.

Referring to claim 28, see rejection of claim 15 above.

14) Claims 16-17, 19-20, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of DeVoe, further in view of Tanaka et al (U.S. Pat 6,274,891).

Referring to claims 16 and 19, Smith and DeVoe teach the above. However, they do not explicitly teach that the light source comprises a gallium nitride (GaN) semiconductor laser, nor that a gallium nitride semiconductor laser is coupled to a fiber.

Tanaka teaches the production and use of GaN-based semiconductor lasers (col. 5 lines 19-27), and also teaches that the lasers may be coupled to fibers (col. 25 lines 63-67).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize a GaN semiconductor laser coupled to a fiber in the invention taught above since a GaN laser allows obtaining a gain guiding structure of high light emitting efficiency (Tanaka, col. 5 lines 22-24), allows a laser to emit a shorter wavelength than traditional lasers (Tanaka, col. 1 lines 24-28), and since focusing a laser into a fiber allows a small-sized semiconductor laser to be obtained and used easily (Tanaka, col. 11 line 64 through col. 12 line 2).

Referring to claim 17, see rejection of claim 16 above.

Referring to claim 20, see rejection of claim 19 above.

Referring to claim 34, see rejection of claim 16 above(whereby examiner notes in addition that col. 25 lines 53-55 of Tanaka discloses using wavelengths less than 800nm).

15) Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of Tanaka.

Referring to claims 29-30, see rejection of claims 16 and 19 above.

16) Claims 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of Partanen, further in view of Tanaka.

Referring to claims 18 and 21, see rejection of claims 16 and 19 above.

17) Claims 8-9, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, further in view of DeVoe, further in view of Guertin et al (U.S. Pat 6,399,010).

Referring to claims 8-9, Smith teaches the above. Smith also teaches that the exposure portion comprises the light source and a spatial light modulator array in which spatial light modulators for modulating the light beam emitted from the light source for each pixel in accordance with the image data are arranged in a first scanning direction and utilize mirrors (col. 6 lines 10-46 and col. 9 lines 42-60 and Figures 3 and 4, whereby an SLM is utilized and adjusted for discrete pixel representations and whereby multiple SLM's may be utilized and translated in a scanning direction). However, Smith does not explicitly teach a scanning mirror for scanning in a second scanning direction intersecting the first scanning direction, nor that the moving portion moves the exposure portion in the first scanning direction and the second scanning direction intersecting the first scanning direction.

Guertin teaches utilizing multiple passes of a scanning exposure, the passes in perpendicular directions, in a solidification apparatus (col. 16 lines 21-37).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to scan in a second direction intersecting the first scanning direction since this is a

well known method of exposing a medium to stimulation in an exposure solidification technique (Guertin, col. 16 lines 20-26).

Referring to claims 32-33, Smith and DeVoe teach the above. However, they do not explicitly teach that the exposure portions move independently in first and second directions perpendicular and substantially parallel to the surface of the resin.

Guertin teaches utilizing multiple passes of a scanning exposure, the passes in perpendicular directions, in a solidification apparatus (col. 16 lines 21-37, whereby exposure beams move relatively parallel to a surface).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to utilize the limitations above since this is a well known method of exposing a medium to stimulation in an exposure solidification technique (Guertin, col. 16 lines 20-26).

Response to Arguments

18) Firstly, referring to applicants arguments regarding claim 1, applicant argues that Smith fails to disclose "...using a light beam...pulse driven in picosecond pulses". As noted by applicant, examiner does not rely on Smith to teach this limitations, rather relying on the DeVoe reference. Applicant then argues that "one of skill would not be motivated to combine Smith with DeVoe", with the justification that "absent within DeVoe is any teaching...that picosecond pulses...will provide adequate results". Applicant also argues that DeVoe "is not applicable to an ultraviolet save lamp source" and that "the light energy provided...is reduced to a minimum". In response, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the

knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, DeVoe clearly teaches that using picosecond pulses is possible and is used in optical modeling. The reason to combine is clearly stated in the rejection above. DeVoe also teaches at col. 6 lines 30-35 that pulses less than 10^-11 are most preferable, but that picosecond pulses, as noted by applicant, do not result in as large an operational window. However, examiner does not believe that DeVoe in any way specifically teaches away from the use of picosecond pulses. Therefore, referring to claims 1, 5 and 12, examiner notes the rejection above.

With regard to claim 25, Examiner would like to note that applicant has argued that the claim follows suit with claims 1, 5 and 12 above. However, there was no amendment to claim 25, and the limitations, as shown in the rejection above, are still read upon solely by Smith.

With regard to applicants arguments of claims 10-11, see the new rejection above.

Referring to applicants arguments regarding claims 2 and 26 above, see response to claim 1 arguments above.

With regard to applicants arguments of claims 8-9, see the new rejection above.

Referring to claims 16-21 and 29-30, applicant argues the combination of Smith with Tanaka. Applicant states that the motivation is an "ad hoc attempt...to support the attempted combination" and that "one of ordinary skill...would not be motivated to make the combination" and that "there is no relation between these factors...to combine". In response, examiner notes that it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was

concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the field of optical modeling centers around the use of laser beams, and Tanaka is directed at a laser beam assembly. In addition, Tanaka clearly teaches that GaN lasers are well known, and the examiner has given in the reason to combine the facts that GaN lasers allow for more efficiency and shorter wavelengths than other types of lasers, obviously giving well known advantages over traditional laser assemblies. Therefore, examiner maintains the rejection above.

Conclusion

19) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Alexander J. Kosowski
Primary Examiner
Art Unit 2125